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ABSTRACT

Behavioral objectives are defined accepting Mager's definition, research dealing with them is reviewed and synthesized, and recommendations for further research are made. Each section is divided into four categories: (1) educational significance of behavioral objectives, (2) evaluation through behavioral objectives, (3) student awareness of and participation in behavioral objectives, and (4) teacher training in the development and use of behavioral objectives. Among the recommendations are that the relationship between long- and short-term objectives of a program be examined, that evaluations of programs using behavioral objectives be compared with evaluations of programs not using them to determine the value of behavioral objectives in terms of the instructional-evaluative process, and that the place of behavioral objectives in open classrooms be studied. This joint ERIC/CRIER and International Reading Association publication is one of a new series designed to provide researchers, professors, and students with an indication of the state of research in a closely defined area and with recommendations for directions which future research should take. An extensive bibliography is included. (MS)

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THE USE OF BEHAVIORAL OBJECTIVES IN EDUCATION

Diane Lapp

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ERIC+IRA
Reading Information Series
WHERE DO WE GO?

The Use Of Behavioral Objectives In Education

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U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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This new series from ERIC/CRIER+IRA is designed to review the past, assess the present, and predict the future. The third publication in this series reflects the continued careful and thoughtful development of the series by Dr. Richard A. Earle.

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Foreword

ERIC/CRIER and IRA are concerned with several types of information analysis and their dissemination to audiences with specific professional needs. Among these is the producer of research – the research specialist, the college professor, the doctoral student. It is primarily to this audience that the present series is directed, although others may find it useful as well. Therefore, the focus will rest clearly on the *extension* of research and development activities: "Where do we go?" Our intent is not to provide a series of exhaustive reviews of literature. Nor do we intend to publish definitive statements which will meet with unanimous approval. Rather, we solicit and present the thoughtful recommendations of those researchers whose experience and expertise has led them to firm and well-considered positions on problems in reading research.

The purpose of this series of publications is to strengthen the research which is produced in reading education. We believe that the series will contribute helpful perspectives on the research literature and stimulating suggestions to those who perform research in reading and related fields.

Richard A. Earle
Series Editor

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Introduction

A behavioral objective has been defined by R. F. Mager as a statement telling the conditions under which a specified behavior will occur (external conditions), the type of behavior that is to occur as a result of planned instruction (terminal behavior), and the performance level that will be accepted (acceptable performance). The term *behavioral objective* has accumulated the following synonyms which appear frequently in educational literature: goals, instructional objectives, educational objectives, performance objectives, and training objectives.

This paper, which accepts Mager's definition, begins by reviewing the literature dealing with behavioral objectives. The literature is divided into four categories: 1) educational significance of behavioral objectives, 2) evaluation of student learning and of the instructional program through behavioral objectives, 3) student awareness of and participation in behavioral objectives, and 4) teacher training in the development and use of behavioral objectives.

The section which follows is a synthesis of the strengths and weaknesses of the research reviewed. The final section proposes recommendations for future research, including a thinking process proposed by the author for use by the classroom teacher when planning and evaluating the instructional program.

Review of literature

Throughout the history of education, objectives have been delineated by educators for their instructional procedures. Such objectives have ranged from mastery of the *Bible* to the mastery of specified bodies of knowledge in an attempt to develop the "enlightened man." Research articles dealing with the topic may be found as early as 1918, although a variety of synonyms have been used for the term *behavioral objective.*

The literature has been categorized into four basic sub-areas: 1) educational significance and relevance of the behavioral objective, 2) evaluation of student learning and instructional program through behavioral objectives, 3) student awareness of and participation in behavioral objectives, and 4) teacher training in the development and utilization of behavioral objectives.

Educational significance of behavioral objectives

The educational significance and relevance of behavioral objectives in curriculum planning has been debated by educators for decades. While this paper attempts to summarize the debate, it deals primarily with the positive elements.

Morrison (1965) stated that an objective must clearly communicate the intent of its author. If the objective fails to communicate its purpose, procedures for meeting the desired end cannot be developed; and it is highly unlikely that one could measure with any confidence whether the objective has been met.

The need for clarity in the statement of objectives was also suggested by Wittrock (1969), who asserted that before judgments and

decisions about instruction could be reached, the basis for such decisions and judgments must be explicit through the use of objectives.

Eiss (1970) stressed the need for clarification of instructional objectives, specification of an adequate rationale for curriculum development, and immediate implementation of this process if needed educational revisions were to occur.

Clarification of behavioral objectives was urged by Bushnell (1967), when he stated that although the American educational system has made many achievements, it still has many inadequacies. Two of these inadequacies are the need for a clearer definition of objectives and the need for an overhaul of the educational process based on such well defined objectives.

Anderson and Gates discussed the elements of instruction and their relationship to the general nature of learning. The following two points emphasize the importance of including objectives within the general nature of the instructional program:

1) The objectives of education, hence of instruction, can and may well be expressed in terms of individual behavior.

2) Instruction must provide some goal (incentive which satisfies the motive) toward which the learning activity is directed. (1950, p. 34-35.)

Krathwohl, in discussing the need for objectives, listed the following three levels of specificity needed in the instructional process:

1) Broad and general statements in the development of programs of instruction.

2) A behavioral objectives orientation to synthesize broad goals into more specific ones.

3) Creative instructional materials which are an operational embodiment of a particular planned curriculum. (1965, p. 83.)

He further suggested the following reasons for including objectives in the instructional process:

1) Each level of analysis permits the development of the next more specific level.
2) Mastery objectives can be analyzed to greater specificity than transfer objectives.
3) Curricula gain adoption by consensus that what is taught is of value. Consensus is more easily gained at the more abstract levels of analysis.
4) There are usually several alternative ways of analyzing objectives at the more specific level. Objectives at the more abstract level provide a referent for evaluating these alternatives. (1965, p. 86.)

There are also instances when a general objective is contrived and then designed into a behavioral objective. For example, a classroom objective may be to introduce children to the community helpers. A behavioral objective derived from such a broad objective could be that given a lesson which introduces community helpers, the child will be able to verbally name at least one such person and describe his role in the community with complete competency. Why is an objective of this type needed or employed by the teacher? When the teacher is asked to state in specific behavioral terms what she wishes to accomplish by a specific lesson, she will be able to determine:

1) If the accomplishment of the stated objective is really of any value to the total development of the child.
2) If the child has accomplished the objective.
3) If the child has not accomplished the objective:
   a) whether the objective can be accomplished by this child at this time.
   b) whether the performance level of the objective was too difficult.
   c) what new methods of instruction are needed to better enable the child to accomplish the objective.

A review of the literature thus far seems to indicate that the statement of the desired behavior to be accomplished through the implementation of a particular task is the primary step in the evaluation of an instructional program.

The literature has also indicated that objectives need to be stated in specific behavioral terms if the growth of the child in a particular area is to be measured. Although this point may be valid, it does not necessarily follow that all classroom behavior must be stated in specific behavioral terms at all times.

The task that the classroom teacher confronts when defining behavioral objectives for the instructional process was examined by Lindvall:

> . . .statements of the purposes of education are truly meaningful only when they are made so specific as to tell exactly what a pupil is to be able to do after he has had a given learning experience. Such statements are rather typically referred to as specific instructional objectives. Logically, they may be considered as being derived from the broader and more general statements of "purpose" or "philosophy." Since they are more specific and necessarily more limited, it is usually necessary to develop many specific objectives from any one statement of general purpose. Also, if these statements are to serve their purpose they should be thought of as telling what a pupil may be able to exhibit, after some limited and definite period of instruction such as a term, a week, or even a day. (1964, p. 2.)

Lindquist (1955) suggested that there should be both long- and short-term (general and specific) program objectives since many basic instructional objectives cannot be fully evaluated until long after the instruction has been concluded. He emphasized that the short-range objectives should be characteristic of the long-range objectives and relevant to the pupils who are to receive the instruction. Continuous evaluation of these short-range objectives should provide the evidence that their attainment will eventually lead to the completion of the long-range objectives. Evaluation of the methods of instruction within the program should provide evidence for the validity of both the long- and the short-range objectives.

The overall objective of most classroom teachers is to aid children in their development as citizens, workers, and individuals. Although a variety of techniques are employed, many of the resulting behaviors are not evidenced until adulthood. Therefore, many of the desired outcomes of long-range objectives cannot be written in immediately measurable terms.

To facilitate the teaching-learning experience, Cohen (1970) advocated that behavioral objectives be designed and used by teachers from the elementary school level to the university.

To accomplish this endeavor, taxonomies have been formulated which may better enable teachers to add clarity to behavioral objectives through extensive classification of the behaviors they wish to develop and measure. Bloom (1956) and Krathwohl (1964) have developed their taxonomies in order to facilitate the teacher's task of describing desired behaviors and of developing techniques for measuring these behaviors. More specifically, these taxonomies were intended to provide a classification schema for educational goals. Utilization of the taxonomies enables the planner to correlate learning experiences and evaluation devices.

In order to develop behavioral objectives within the framework suggested by the taxonomies of Bloom and Krathwohl, Metfessel and others (1969) have developed the following guidelines for classifying such behaviors:

1) Taxonomic classification identified by code number and terminology.
2) Appropriate infinitives which a teacher or curriculum worker might employ to achieve precise wording of a desired activity.
3) General terms which are relative to subject matter properties.

Although these taxonomies deal with both the cognitive and affective domains of behavior, studies by Pfeiffer and Davis (1965) and Farley (1968) indicate that *low level* cognitive behaviors (knowledge, comprehension) are the ones teachers primarily meas-

ure. The *lack* of studies in the affective domain seems to indicate that little attention has been directed to it.

The development of objectives for all domains of behavior is an essential part of the instructional process, not only as a means for teacher planning but also as a means of self-direction for the student. Concern for "humanizing" objectives was evidenced by Gagné when he focused attention on the reasons for defining educational objectives in terms of human performance. This concern was indicated when he stated:

> Objectives are used to tell us whether the inference of learning can be made. They are used as specifications of the kinds of questions to ask the student in assessing his current capabilities. They become important guides for the teacher's behavior in selecting appropriate instruction. And they could probably be used to greater advantage than they are at present for informing the student of the goals to be achieved. (1965, p. 14.)

If the attempt to personalize the behavioral objective is perceived, Eisner (1968), Ebel (1970), Macdonald and Wolfson (1970), and others, who are skeptical of behavioral objectives, may add further impetus to the movement to "humanize" behavioral objectives.

Evaluation of student learning and instructional program through behavioral objectives

Curricular program evaluation is dependent upon clear explanation and explication of the behaviors one is attempting to measure. In 1962 Ammons reflected that educational objectives benefit the classroom teacher: 1) in selecting instructional activities appropriate to the achievement of the objective, and 2) in selecting evaluation techniques suitable for assessing both student progress toward the objective and the general quality of the program.

In order to facilitate the task of the teacher-evaluator, Hammond and a team of educators (1967) developed a model for evaluation which calls for the statement of objectives in behavioral terms. Closely

related to this model is one proposed by Alkin (1969) which consists of five stages of evaluation: needs assessment, planning, program implementation, program improvement, and program certification. Alkin suggests the need for behavioral objectives at each stage of evaluation.

While the teacher may choose from a variety of evaluative models, she must be careful not to base her total evaluation on a few specified behaviors previously outlined in behavioral terms. We can never be so naive as to believe that measured behaviors are the only happenings of value within classroom setting. The teacher must be aware enough of both her children and their programs so that she can intelligently estimate growth which has not been planned and/or objectively measured.

Michael and Metfessel (1967) presented a paradigm proposing eight basic steps that may be used in the instructional evaluation process. They emphasized the role of evaluation as a recycling decision-making process which is very similar in nature to that proposed by Guba and Stufflebeam (1970). For example, these authors have indicated that program objectives should first be operationally defined if they are to be transferred into meaningful learning experiences. Changes in behavior as a result of the experience can then be assessed through appropriate standardized and informal measures. After interpreting the changes in behavior, inferences and conclusions regarding both the broad and specific program objectives can be made. Further recommendations and restructuring of the program, as well as modifications of goals and objectives, may then be implemented.

Sorenson (1968) discussed the role of the evaluative consultant and suggested that he must accept certain basic assumptions with regard to educational goals. One assumption is that he must help school personnel to define their goals in terms of pupil behavior and state these goals in descriptive rather than interpretive language.

Although Sorenson views the evaluator as a helper to the teacher, some authors indicate that the teacher herself must be knowledgeable of the evaluation process. For example, Dodl (1969) stated that the role of the teacher in evaluation is continuous. The teacher is involved with selection and *evaluation* of lesson content and with the planning of teaching strategies and *evaluation* of criteria. Instructional and evaluative procedures throughout the program should reflect the objectives.

A fundamental part of the evaluative process is the teacher's instructional procedure. Anderson, Whipple, and Gilchrist listed the principles which should guide the instructional process:

1) Teachers should, as a first step in instruction, have clearly formulated in their minds the educational objectives they are to attain through the instructional process.

2) Educational objectives should be translated into behavior-patterns of knowing, understanding, appreciating, desiring, adjusting, doing, and thinking that become functional aspects of the child's daily living.

3) Educational objectives become patterns of response of the type just enumerated as children have the guided experiences designed to achieve these objectives.

4) New behavior patterns, both desirable and undesirable, are established in terms of the goals which children themselves attempt to reach through their activity.

5) Goals for learning activity are established in terms of children's motives—their wants, needs, interests or drives.

6) A first step in the actual instructional process is to formulate, with the children as participants, the goals to be attained as they work and learn.

7) Evaluation is an integral part of the instructional process. Teachers and pupils should be continuously considering together the contribution of different experiences to goals sought. The ongoing experiences should be restructured in light of the evaluations being made. (1950, p. 337-38.)

This position is supported by a number of authors. Engman (1968) emphasized the need for teachers to develop learning experiences around specific course objectives; Consalvo (1969) stated that performance objectives are a prerequisite for valid assessment; Tyler (1951) suggested that the learner can demonstrate mastery, only if the teacher writes items that measure attainment of a particular objective; McAshan (1970) explained that writing behavioral objectives provides educators with a guide to the evaluation of programs and to the direction of future instruction.

Popham, who developed the *Instructional Objectives Preference List* (1967), is concerned about teachers' use of instructional objectives. Although a great deal of lip service has been given to behavioral objectives, teachers for many reasons, are still having serious problems utilizing them in actual classroom planning (Popham and Baker, 1970). The major weakness seems to be loose structuring of the objective at the onset. However, since emphasis has been directed toward the stating of objectives in terms of measurable learner behavior, educators have been encouraged to focus on the role of evaluation in educational planning.

Tyler (1938) stated that one reason for testing is to identify the results of the instructional process. The testing program should concentrate on the areas presented in the instructional program. Testing should measure the degree to which the program objectives are being attained. Testing based on the objectives of instruction should provide valuable information which will aid in improving the instructional program.

Kibler (1970) placed great stress on a systematic development of behavioral objectives. He stated that behavioral objectives should be used to design and evaluate instruction and to communicate to interested persons the goals of the instructional unit.

Thus, evaluation has a variety of functions, each of which seems to rely heavily on the incorporation of behavioral objectives in the evaluative schema.

Student awareness of and participation in behavioral objectives

The importance of objectives as a part of the curriculum was stressed in a proposal written by the American Institutes for Research (AIR). Although no formal research was conducted, the following statement was included:

> The importance to the success of an educational venture of clearly defined objectives has been emphasized by various investigators of educational problems, including Tyler. . . , Dressel. . . , Bloom. . . , and his collaborators. . . , among others. At the level of college instruction, for example, teachers who worked at the process of specifying objectives are reported to have achieved great clarification in the content and method of course presentation, resulting in improved student achievement. When such objectives are made clear to the student his interest and motivation are likely to increase. In addition, of course, well-defined objectives provide a basis for realistic appraisals of student achievement and progress. (1965, p. 3.)

A study by Doty (1968) tested the AIR hypothesis that prior knowledge of educational objectives affects the practice and performance of students. The evidence presented in the concluding statements of this study indicated that students' knowledge of educational objectives prior to the study of an instructional unit increased the efficiency of student learning.

Bryant (1970) conducted a similar study to determine if the expression of course objectives in behavioral terms had a significant effect on the achievement of students. Six teachers and 210 pupils were involved in the study. Three teachers were trained to develop behavioral objectives, and three received no such training. A criterion test was developed by all six teachers to be administered to the pupils at the conclusion of the study. Experimental groups consisted of 1) pupils and teachers who were given the course objectives, 2) teachers who were given the objectives, 3) pupils who were given the objectives, and 4) pupils and teachers who were not given the objectives. Analysis of covariance was used to determine the significance of treatments with the covariate being the pupil's

intelligence quotient score. It was concluded that pupils taught by teachers trained in the use and development of behavioral objectives performed better on the criterion measure. In addition, providing students with the objectives improved their understanding of what was expected of them.

Samples (1970) accepted the finding that gains have been made by students who knew the objectives they were to accomplish. He suggested in addition that students should be free to design their own objectives.

The following study supports this proposal. Mager and Clark (1963) conducted an industrial training experiment to determine how well students progressed in a program which supplied them with their behavioral objectives upon admittance. The students were asked to identify the skills they needed to acquire in order to accomplish the specified objectives. The population consisted of newly graduated engineers who were being trained for employment with a particular company. The prescribed training course was divided into three periods for a total of six months. The first six weeks consisted of formal lectures; the second six weeks rotated the trainee through various departments of the company which were to employ him; the last three months involved various individual assignments which were based on each student's pre-assessed skills. The results of this study indicated that by supplying the behavioral objectives, training time was reduced sixty-five percent. The manager of this division considered this group of engineers better trained at the time they assumed their permanent responsibilities than previously hired engineers.

Although the reported results of this study should not be generalized to populations differing greatly from the one here described, the results indicate that certain populations of students perform more effectively when they are cognizant of the course objectives.

Ojemann (1969) supported the conclusions of these studies when he stated that lack of clear understanding results in many instances from misdirected learning experiences, inappropriate evaluative measures, and confusion within the learner as to what was expected of him. He suggested that curricular objectives should be expressed in specific behavioral terms to avoid ambiguity.

Teacher training in the development and use of behavioral objectives

There is evidence of a growing interest in the training of teachers to develop behavioral objectives. Baker (1967) compared the effect behavioral and nonbehavioral objectives have on learning. In this study several teachers were given behavioral objectives for a particular lesson and several teachers were given nonbehavioral objectives for the same lesson. The children in each class were given a pretest and post-test. No significant differences were found on the mean scores of the tests. Baker concluded that the lack of significant differences may have been due to the teachers' inability to discriminate items relevant to the given objectives. Another reason for the results may have been related to the teachers' lack of motivation to promote high pupil performance. The inconclusive results of this study suggest that supplying behavioral objectives is not enough; teachers must be taught how to utilize them most effectively.

The hesitancy on the part of teachers to develop behavioral objectives has been discussed in a manual prepared by Bemis and Schroeder (1969). This manual focuses attention on the interrelatedness of the various domains, and it seeks to alleviate teacher fears based on ignorance or misconception with regard to the development of behavioral objectives.

Gilpin stated that little has been done to prepare teachers to develop and utilize objectives in the planning of instructional units. According to Gilpin, an adequately prepared teacher can develop instructional objectives more effectively if the following questions and procedures are followed:

1) What is it that we must teach?
2) How will we know when we have taught it?
3) What materials and procedures will work best to teach what we wish to teach? (1962, p. viii.)

Guidelines such as these may encourage teachers to define objectives before they begin to teach any lesson. Mager, for example, specified five steps to follow in the development and use of behavioral objectives:

1) A statement of instructional objectives is a collection of words or symbols describing one of your educational intents.
2) An objective will communicate your intent to the degree you have described what the learner will be doing when demonstrating his achievement, and how you will know when he is doing it.
3) To describe terminal behavior (what the learner will be doing):
   a) identify and name the overall behavior act.
   b) define the important conditions under which the behavior is to occur (given and/or restrictions and limitations).
   c) define the criterion of acceptable performance.
4) Write a separate statement for each objective; the more you have, the better the chance you have of making clear your intent.
5) If you give each learner a copy of your objectives, you may not have to do much else. (1962, p. 52.)

Openshaw (1965) stated that while schools are directing attention toward the restructuring of their teacher training programs, research and attention need to be directed toward education as a social institution. Educational objectives need to be developed for schools in the setting in which they are to function.

Bioarsky's (1969) work at UCLA's Center for the Study of Evaluation suggests the necessity of enabling teachers to specify learning objectives and to clarify and evaluate classroom instruction in relation to these objectives. However, if these suggestions are to be adopted by teacher training programs, implementation will have to

begin at a very basic level, since a study by Lapp (1970) indicates that elementary teachers are not, at this time, prepared to write behavioral objectives for the content areas: reading, arithmetic, science, and social studies.

If teachers are to use behavioral objectives, their training must include the specification of the educational philosophy the objective expresses. Secondly, the training must clarify how behavioral objectives will be useful to the teacher in her instructional-evaluative processes. Ausubel (1963) has suggested that meaningful learning implies practice, if the desired changes in cognitive behavior are to occur. When this theory is applied to the preparation of teachers, it becomes obvious that teachers must be taught to develop and utilize behavioral objectives in classroom planning if they are later to be held accountable for the results of their instruction.

Hite (1968) has designed the following six tasks to prepare teachers to write behavioral objectives:

1) Define behavioral objectives and list the characteristics of the behavioral objective.
2) Distinguish between objectives which are and are not behavioral.
3) Write behavioral objectives for learning activities appropriate to their special field of teaching.
4) Write behavioral objectives at the various levels of the cognitive domain.
5) Write behavioral objectives at the various levels of the effective domain.
6) Write behavioral objectives at the various levels of the psychomotor domain.

Morrison (1970) accepts the premise that there is no one optimum instructional package for an objective. He suggests working procedures, rules, and concepts which will aid the teacher in the analysis of objectives and the design and evaluation of the learning program.

If behavioral objectives are of primary importance in the teaching-learning setting (Mazur, 1969), the next question is: If elementary teachers were taught to write behavioral objectives, would their planning, instruction, and evaluation become more effective?

Synthesis

Scrutiny of research and opinion on behavioral objectives indicated that the primary limitation is a disproportionate number of articles based on conjecture as compared with the number based on research. It appears as if many authors and educators have drawn conclusions based on logical analysis or speculation rather than utilizing appropriate empirical techniques to determine the degree of strength of their hypotheses. Further analysis of the literature indicates that while the majority of educators, psychologists, businessmen, and others agree on the value of behavioral objectives, this attitude is not unanimous. Diversity of opinion is reinforced by two basic conditions: 1) the absence of research substantiating many hypothesis about the positive aspects of behavioral objectives, and 2) the negative views of several writers concerning the worth of behavioral objectives.

Educational significance of the behavioral objective

Although interest has been evidenced in the statement of objectives, vagueness of definition has been a major weakness in this area. Some authors (Lindvall, 1964; Morrison, 1965) have suggested that specificity may be accomplished by stating objectives in behavioral terms. Considerable attention has been directed toward the taxonomies of Bloom and Krathwohl. While these taxonomies have been applauded for succinctly defining the cognitive and objective domains, they have been criticized by those who feel that they further encourage teachers to dehumanize children (Gagné, 1965; Eisner, 1968).

A basis for this criticism is the general development of objectives for the lower levels of the cognitive domain with little attention being given to the affective domain or higher levels of the cognitive domain. Another factor is the tendency to separate the domains when discussing behavior. The plausibility of separating the cognitive and affective domains for discussion or measurement, while failing to direct attention to the conative domain, i.e., functions like drive, will, persistence, is questionable.

This criticism might be overcome, if teachers were better trained to develop and use objectives at the highest levels of all domains.

Evaluation of student learning and instructional program through the utilization of behavioral objectives

While the utilization of behavioral objectives in both classroom and program evaluation has been suggested by Ammons (1962) and Alkin (1969), the degree of utilization is still a question of considerable concern. Clarity on this subject will not only add to the value of the behavioral objective in evaluation, but also to its significance in initial educational planning.

Evaluators are involved in daily decision-making concerning children and their curriculum. Hammon (1967) and others have suggested that evaluators need to adhere closely to an evaluative model which relies on behavioral objectives. This premise has been supported by others (Michael and Metfessel, 1967; Guba and Stufflebeam, 1970) who have also developed evaluative schemas which are dependent upon behavioral objectives. To assume that the evaluation process is more thorough when behavioral objectives are included within the decision-making framework is to accept a hypothesis supported primarily by conjecture. The value of such a hypothesis certainly needs to be tested before it is accepted by educators.

Many authors are of the opinion that behavioral objectives are relevant to the evaluation of the instructional program; however, as

suggested in a later section of this paper, much research needs to be done before one can conclusively determine the role of the behavioral objective in the evaluation process.

Student awareness of and participation in behavioral objectives

Research (Mager and Clark, 1963; Doty, 1968) indicates that students' knowledge of behavioral objectives and their knowledge of the expected outcome prior to the study of an instructional unit results in increased efficiency of student learning.

Research by some (e.g., Bryant, 1970) has suggested that positive gains were made when teachers and students cooperatively employed objectives in instructional planning. Other authors suggest that both students and teachers need to be given a still clearer understanding of the *value* of the behavioral objective in the planning and evaluation of the instructional program. The precise degree of value must be determined by further research.

The literature clearly suggests that students have greater success when they are aware of their program objectives. The question revolves around the degree of awareness. Should the student be told the objectives or should he be involved in the formulation of the objectives? Pursuing this question forces educators to deal with the levels of student involvement.

The degree of student involvement depends upon the structural philosophy of his school, i.e., "traditional" vs. "open" vs. "eclectic" classrooms. The role of student involvement and behavioral objectives is greatly in need of research.

Teacher training in the development and use of behavioral objectives

The literature indicates the need for teachers to be able to develop behavioral objectives when planning and evaluating the curriculum. Yet a recent study by Lapp (1970) concluded that elementary

teachers are unable to write behavioral objectives. It may be necessary to look beyond the classroom of the individual teacher and to examine teacher training programs. As suggested throughout this paper, there is a need for research before any conclusions can be reached about the value of training teachers to use behavioral objectives.

However, some authors (i.e., Popham, 1967) have suggested that teachers should be supplied with the objectives rather than be taught to develop them. It seems unlikely that teachers who are supplied with behavioral objectives will be able to personalize them for their own students. This is the area open to research.

The real issue this author confronts when discussing the progress made by teachers who are either *cognizant of*, or have *developed* objectives for their program of study is a fear that the child will work toward set goals to the exclusion of all other incidental learnings. Are we developing programmed people, even though we feel very contemporary in allowing the child to plan his curriculum? This is a concern that needs to be given careful attention.

The following statements by Armstrong indicate needed attention in a variety of areas if behavioral objectives are to be effectively utilized:

> Objectives at several levels of generality and specificity are needed to facilitate the process of improving curriculum and the evaluation of instructional programs. Describing a behavior and deciding how the behavior will be measured can be a difficult task for teachers. The main reason for this would seem to be that in the past the word objective, when used by the educator, generally meant an intent or purpose open to interpretation and when educators speak of purpose they almost invariably use words such as understanding, comprehension and appreciation. When left in this form these words do not refer to anything that is directly observable and therefore do not permit evaluation to be carried out in a systematic manner. It seems difficult to overemphasize the importance of stating objectives in terms of observable behavior. Once this has been accomplished other problems can be solved more easily. Indeed, if teachers at all levels of instruction

> would be explicit in working out their objectives, they might reasonably hope to eliminate almost immediately one cause of learning failure among students—the traditional fuzziness of classroom assignments. (1970, p. 16.)

The concern of educators has been the functional use of behavioral objectives within the curriculum. However, there is a need for further research in this area before total use of behavioral objectives can be positively endorsed by this writer.

Recommendations

Although the lack of utilization of behavioral objectives has been of interest and concern to educators for many decades, speculation has often been a replacement for research. The following research suggestions are offered in an attempt to begin to add clarity to this body of literature.

Educational significance of the behavioral objective

As discussed earlier, taxonomies have been developed which have attempted to indicate the levels of the cognitive and affective domains; however, it might be of value to research the following questions with regard to persons utilizing behavioral objectives for curriculum planning (supervisors, curriculum coordinators, reading teachers, principals, etc.):

1) Are curriculum planners *aware* of the taxonomically stated levels of the cognitive and affective domains of behavior?
2) If aware, are they also in agreement with the levels of stated behaviors in each taxonomy?
3) If aware and in agreement, can they *develop* behavioral objectives for the various levels of these domains?

However helpful these taxonomies have been, they have also suggested that the cognitive and affective domains of behavior can be separated in their development and have given little or no attention

to the conative domain. Therefore, an additional series of reasearchable questions is suggested:

1) Do the cognitive and affective domains function independently of one another?
2) If the cognitive and affective domains function separately, do either of these domains have a functional relationship with the conative domain?
3) If the cognitive and affective domains do not function separately, do they jointly have a functional relationship with the conative domain?

The suggested ability to separate various domains of behavior has elicited concern from educators who have suggested that the "personalization" of education might be lost if teachers were trained to utilize behavioral objectives when discussing the "feeling" aspect of a person.

As suggested by the above discussion, the topic of the "personalized classroom" is one which has received much attention from educators who have concerned themselves with not only the educational significance of the behavioral objectives, but also with the potential role of the behavioral objectives in the evaluation process. However, what occurs during everyday (short-term) planning may be quite different from what is suggested by the philosophy stated in long-term planning. Therefore, a criterion instrument might be developed which would examine the relationship between the long- and short-term objectives of a stated program. The results of such a study might be helpful in answering the following questions:

1) Is a specific philosophy present in long-term planning?
2) Are the short-term objectives related to the overall philosophy expressed in the long-term objectives?

The results of a study of this nature might indicate that there is little relationship between long- and short-term objectives, or perhaps it would indicate that while statements of long- and short-term

objectives differ, the underlying philosophies are similar. Perhaps a lack of clarity of definition in the development and implementation of the behavioral objectives has occurred because of a limited relationship between philosophy and practice. Whatever the results of this study, the input would certainly be beneficial to curriculum planners, evaluators, implementers, and others concerned with the educational significance of the behavioral objective.

Evaluation of student learning and instructional program through the utilization of behavioral objectives

The following study might be conducted to determine if evaluation is more inclusive (describing cognitive, affective, psychomotor, and conative behaviors) when it is part of a program initially constructed with behavioral objectives than when it is part of a program which does not rely heavily on initial objectives.

In order to conduct a study of this nature, two populations of teachers (Group A and B) could be examined in a manner suitable to the researcher:

Group A: teachers employing behavioral objectives in initial planning of the instructional process

Group B: teachers not employing behavioral objectives in initial planning of the instructional process.

The researcher might conduct an interview to determine which group (A or B) of teachers more specifically incorporated descriptions of cognitive, affective, psychomotor, and conative behaviors in their evaluations of the children and the lesson. The results of such a study would add further information for those interested in the value of behavioral objectives for the teacher in the instructional-evaluative process.

This proposed study, and much of the existing literature, seem to be emphasizing the need for teacher evaluation of students within the instructional program. In order for the teacher to adequately

evaluate the students and the curriculum, she may also need to be able to evaluate the objectives that are designed for the students and the curriculum. Some authors have suggested that teachers may be supplied with behavioral objectives from the Instructional Objectives Exchange. It seems that in order tc personalize these objectives, teachers should be able to adjust the behavioral objective to the competency level of the students with whom she is working. Therefore, the following hypotheses are proposed:

H_o1: Teachers cannot modify behavioral objectives to meet the competency level of the children in their classroom.

H_o2: Teachers will not utilize behavioral objectives in their planning if they are not trained to manipulate the three components of the behavioral objective.

In order to conduct a study based on these hypotheses, two populations of teachers are needed:

Group A: teachers trained in the following thinking process proposed by this author

Group B: teachers having no training in the following thinking process proposed by the author

After teachers have been separated into Groups A and B, Group A would be trained in the following process which may better enable teachers to more readily develop behavioral objectives and to manipulate the components of the objectives they have been given. Group B would be given no training in the development or manipulation of the behavioral objective.

The teachers in Group A would be given a hypothetical lesson and begin their thinking process by answering the following questions:

1) Given a lesson in listening to classical records (external conditions), what type of instruction will be given?

2) What should the student be able to do (terminal behavior)? He should be able to identify.

3) Is the identification of all 18th century music sufficient accomplishment (acceptable performance)?

After writing the components of an objective, the teachers would be asked to determine if this experience is really of any value to the total (cognitive–affective–psychomotor–conative) growth of the child. If they decide the activities will be beneficial for the child, they proceed to the next step of the process which asks them to:

1) Determine if the objective has been met–
   a) determine if there are related objectives to be designed and utilized at this time.
2) Determine if the objective has not been met–
   a) determine if the objective should be terminated at this time because it is unrealistic.
   b) determine which criterion of the stated objective has failed (acceptable performance level, external conditions, terminal behavior).
   c) develop new procedures or external conditions or acceptable performance levels to meet the initial objective if it has been determined that the objective is relevant to the situation.

After the group has been trained in this process, the two populations could be tested by a means determined by the researcher to determine if:

1) Teachers trained in the proposed thinking process can modify behavioral objectives to meet the competency levels of the children in their classrooms.
2) Teachers trained in this process can develop new procedures for objectives that have not been met.
3) Teachers trained in this process can determine if the objective is relevant to the total growth of the child.
4) Teachers trained to think about behavioral objectives utilize them in planning more readily than teachers who are not trained.

Since continuous evaluation in the classroom setting is necessary, the effective teacher needs to realize that the development of the behavioral objective is not the end product of the instructional-evaluative process. Whether the teacher has developed the objective herself or whether she has been given the objective, as some authors have suggested, she must entertain a certain logical thinking process by which the fulfillment of the stated objective is evaluated.

When considering the thinking process proposed for this study, one must remember that although this process may provide the classroom teacher with continuous evaluation contingent upon the existence of the behavioral objective, it cannot be effectively presented to the teacher until the following questions are answered:

1) Can the teacher develop new procedures and activities to meet the initial objective that has been given her?
2) Can she determine which criteria of the behavioral objective were responsible for the failure of the entire stated objective?
3) Can she evaluate the objective to determine if it is relevant to her situation?

While this process may prove to be an effective method for teachers to employ in instructional planning and evaluation, it would be premature to employ it, first of all, without further testing; and it would be even more premature to employ such a process without first of all determining if the behavioral objective has a functional role in the evaluation process.

Since teachers in any educational setting are daily making evaluative judgments about the students in their classroom through promotions, grades, recommendations, ability grouping, etc., it may be interesting to analyze the decision-making process being employed. If these judgments are not based on sound criteria evaluated through measurable objectives, on what are they based? A researchable question might be: Are decisions concerning student ability, promotion, grades, and similar decisions arrived at through measurable criteria stated in behavioral obectives? A plausible study might be

developed by interviewing a population of classroom teachers to determine if their classroom-pupil decisions are based on behaviors planned and measured through behavioral objectives. Although Roser (1970) has examined the decision-making process of administrators, no research has been conducted which deals primarily with the emphasis the teacher places on behavioral objectives in her classroom decision making.

Student awareness of and participation in the implementation of behavioral objectives

The "open classroom" is a topic of great decision in most contemporary settings. One of the often-stated reasons for acceptance of the open classroom philosophy is the degree of flexibility and involvement on the part of both students and faculty.

Since behavioral objectives are cited (Ebel, 1970; Macdonald and Wolfson, 1970; Howes, 1970) for their believed ability to limit flexibility, it is not currently "in vogue" to mention them in the same discussion with the "open classroom." However, it can be hypothesized that while many people feel it is not contemporary to discuss the worth of behavioral objectives, they are being utilized (although not stated as such) by both students and teachers in the planning of the "open classroom" to the same degree as in the "traditional classroom."

This hypothesis could be tested in the following manner:

1) Define terms
   "open classroom."
   "traditional classroom."
2) Survey through questionnaire or interview teachers at a particular grade level from both open and traditional classrooms to determine their instructional planning process.
3) Randomly select students from the classrooms of these teachers and survey them to determine:

a) the planning process
b) their degree of involvement in the planning process.

Throughout the interview the researcher would have to determine whether specific purposes, i.e., objectives, were incorporated within the planning of such a classroom and, if objectives were incorporated, by whom were they determined. It seems that the testing of such a hypothesis might help to bridge the "humanist-behaviorist" gap in the discussion of the role of objectives in the planning of the "open classroom" curriculum.

Since existing literature indicates that students who are cognizant of their objectives attain superior goals, the next question might be: Should students develop the objectives of their program or just be given the objectives by the teacher? In answering this question, a comparative study might be conducted to determine if students who develop their own objectives achieve equally as well as students who are given their program objectives.

Selection of population would depend on the individual interest of the researcher. After selecting the population, the researcher would need to determine performance criteria. He would also need to select or develop an instrument to measure given criteria. After separating the entire population into Groups A and B, the researcher would determine with Group A an area of study, and together they would develop a list of objectives to be mastered. Group B would be given the same list of objectives for the same content area and both groups would begin study.

At the completion of study, Groups A and B would be tested (in a manner prescribed by the researcher) to determine which group had met the performance level defined by the researcher. If there is no difference in the performance of either group, a similar comparative study might be conducted to determine if there is a correlation between the objectives a student would develop for himself and the objectives his teacher would develop for him for the same lesson.

The results of a study of this type might offer suggestions for the redefining of the "child-centered" curriculum, since the literature of the educational profession has consistently discussed the child-centered curriculum as being one heavily dependent upon the child's participation in goal development.

As suggested earlier in this paper, a study needs to be conducted to determine if the student who plans the objectives of his program works toward the planned end while excluding other learning that may incidentally occur. If the results of this study indicate that the above statement is true, the desirability of behavioral objectives in the instructional program may need to be given further examination.

Teacher training in the development and utilization of behavioral objectives

Research should not only examine the trained teacher but also consider the teacher in training. What position do the universities in teacher education hold concerning the effectiveness of behavioral objectives? How adequate are their training programs? An examination of the entire area of teacher training may provide substance for much research. A survey might be conducted to determine if student teachers view behavioral objectives as anything more than a task which must be accomplished to please their supervisors. Additional surveys could explore whether:

1) Teachers in training understand how to develop behavioral objectives for classroom planning (performance criterion).
2) Objectives are representative of the philosophy of the person preparing them (make comparative study; administer test of philosophy, then have subjects prepare objectives).
3) The person preparing the objectives relies on them in the instructional and evaluative processes (make comparative study; have subjects prepare objectives, then observe teaching).
4) The person preparing the objectives finds they increase the efficiency of instructional planning (survey–questionnaire).

5) The person preparing the objectives feels that his supervisor would prepare objectives if he were doing the teaching (survey–questionnaire).

Inasmuch as research is lacking in all of these areas, original research is needed in all of these areas. In addition, replication of existing research may further substantiate the educational significance of the behavioral objective, the evaluation of this process, the instructional benefits for the student, and the need for training present and prospective teachers to develop and use behavioral objectives.

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